



SEQUENCE LISTING

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SEP 11 2002

TECH CENTER 1600/2900

<110> Nakayama, Naoki
Wen, Duanzhi
Han, Chun-ya
He, Ching
Yu, Dongyin

<120> Chordin-like Molecules and Uses Thereof

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<151> 1999-12-07

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<170> PatentIn Ver. 2.0

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Gly Glu Lys Trp His Pro Tyr Leu Glu Pro Tyr Gly Leu Val Tyr Cys
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Cys	Cys	Pro	Arg	Cys	Pro	Asp	Ser	Leu	Pro	Pro	Val	Asn	Asn	Lys	Val	
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Leu Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu
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 Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Ile Ala Glu Gly Leu
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His Gly Glu Leu Phe Ile Ala Glu Gly Leu Phe Gln Asn Arg Gln Pro
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Asn Gln Cys Ser Gln Cys Ser Cys Ser Glu Gly Asn Val Tyr Cys Gly
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Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Ala Glu Leu Ser Trp Glu
145 150 155 160
His Ala Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn Arg Glu Ala Arg
165 170 175
His Ser Tyr Leu Arg Ser Pro Tyr Asp Pro Pro Pro Asn Arg Gln Ala
180 185 190
Gly Gly Leu Pro Arg Phe Pro Gly Ser Arg Ser His Arg Gly Ala Val
195 200 205
Ile Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln Ile Val Ile Asn
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225 230 235 240
Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala Phe Gly Ile Val
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Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys Lys
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Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Ile Asp
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Cys Pro Thr Leu His Cys Leu Ser Pro Val His Ile Pro His Leu Cys
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Cys Pro Arg Cys Pro Asp Ser Leu Pro Pro Met Asn Asn Lys Val Thr
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 20 25 30
 Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn Val Leu Cys
 35 40 45
 Ser Arg Val Arg Cys Pro Thr Leu His Cys Leu Ser Pro Val His Ile
 50 55 60
 Pro His Leu Cys Cys Pro Arg Cys Pro Asp Ser Leu Pro Pro Met Asn
 65 70 75 80
 Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly Thr Thr Tyr Gln
 85 90 95
 His Gly Glu Leu Phe Ile Ala Glu Gly Leu Phe Gln Asn Arg Gln Pro
 100 105 110
 Asn Gln Cys Ser Gln Cys Ser Cys Ser Glu Gly Asn Val Tyr Cys Gly
 115 120 125
 Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro Val Ser Val Pro
 130 135 140
 Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Gly Glu Leu Ser Trp Glu
 145 150 155 160
 His Ser Asp Ala Asp Ile Phe Arg Gln Pro Ala Asn Arg Glu Ala Arg
 165 170 175
 His Ser Tyr Leu Arg Ser Pro Tyr Asp Pro Pro Pro Ser Arg Gln Ala
 180 185 190
 Gly Gly Leu Pro Arg Phe Ala Gly Ser Arg Ser His Arg Gly Ala Val
 195 200 205
 Ile Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln Ile Val Ile Asn
 210 215 220
 Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn Gly Lys Thr Tyr
 225 230 235 240
 Ser His Gly Glu Ser Trp His Ser Asn Leu Arg Ala Phe Gly Ile Val
 245 250 255
 Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys Lys

a!
 cont.

260 265 270
 Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Leu Asp
 275 280 285
 Gly Lys Cys Cys Lys Val Cys Pro Glu Glu Pro Pro Ser Gln Asn Phe
 290 295 300
 Asp Ser Lys Gly Ser Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu
 305 310 315 320
 Ala Val Leu Val Glu Asp Gly Glu Thr Ala Arg Lys Val Ala Leu Glu
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 Gly His Ser Pro Ala Leu Pro His
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aaaagtggaa a atg gga ggc atg aaa tac atc ttt tgc ttg ttg ttc ttt 170
 Met Gly Gly Met Lys Tyr Ile Phe Ser Leu Leu Phe Phe
 1 5 10

ctt ttg cta gaa gga ggc aaa aca gag caa gta aaa cat tca gag aca 218
 Leu Leu Leu Glu Gly Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr
 15 20 25

tat tgc atg ttt caa gac aag aag tac aga gtg ggt gag aga tgg cat 266
 Tyr Cys Met Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His
 30 35 40 45

cct tac ctg gaa cct tat ggg ttg gtt tac tgc gtg aac tgc atc tgc 314
 Pro Tyr Leu Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys

50										55					60					
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Ser	Glu	Asn	Gly	Asn	Val	Leu	Cys	Ser	Arg	Val	Arg	Cys	Pro	Asn	Val					
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cat	tgc	ctt	tct	cct	gtg	cat	att	cct	cat	ctg	tgc	tgc	cct	cgc	tgc	410				
His	Cys	Leu	Ser	Pro	Val	His	Ile	Pro	His	Leu	Cys	Cys	Pro	Arg	Cys					
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cca	gaa	gac	tcc	tta	ccc	cca	gtg	aac	aat	aag	gtg	acc	agc	aag	tct	458				
Pro	Glu	Asp	Ser	Leu	Pro	Pro	Val	Asn	Asn	Lys	Val	Thr	Ser	Lys	Ser					
			95				100						105							
tgc	gag	tac	aat	ggg	aca	act	tac	caa	cat	gga	gag	ctg	ttc	gta	gct	506				
Cys	Glu	Tyr	Asn	Gly	Thr	Thr	Tyr	Gln	His	Gly	Glu	Leu	Phe	Val	Ala					
110				115						120			125							
gaa	ggg	ctc	ttt	cag	aat	cgg	caa	ccc	aat	caa	tgc	acc	cag	tgc	agc	554				
Glu	Gly	Leu	Phe	Gln	Asn	Arg	Gln	Pro	Asn	Gln	Cys	Thr	Gln	Cys	Ser					
			130						135						140					
tgt	tcg	gag	gga	aac	gtg	tat	tgt	ggg	ctc	aag	act	tgc	ccc	aaa	tta	602				
Cys	Ser	Glu	Gly	Asn	Val	Tyr	Cys	Gly	Leu	Lys	Thr	Cys	Pro	Lys	Leu					
			145						150						155					
acc	tgt	gcc	ttc	cca	gtc	tct	gtt	cca	gat	tcc	tgc	tgc	cgg	gta	tgc	650				
Thr	Cys	Ala	Phe	Pro	Val	Ser	Val	Pro	Asp	Ser	Cys	Cys	Arg	Val	Cys					
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aga	gga	gat	gga	gaa	ctg	tca	tgg	gaa	cat	tct	gat	ggg	gat	atc	ttc	698				
Arg	Gly	Asp	Gly	Glu	Leu	Ser	Trp	Glu	His	Ser	Asp	Gly	Asp	Ile	Phe					
			175						180						185					
cgg	caa	cct	gcc	aac	aga	gaa	gca	aga	cat	tct	tac	cac	cgc	tct	cac	746				
Arg	Gln	Pro	Ala	Asn	Arg	Glu	Ala	Arg	His	Ser	Tyr	His	Arg	Ser	His					
190				195						200						205				
tat	gat	cct	cca	cca	agc	cga	cag	gct	gga	ggg	ctg	tcc	cgc	ttt	cct	794				
Tyr	Asp	Pro	Pro	Pro	Ser	Arg	Gln	Ala	Gly	Gly	Leu	Ser	Arg	Phe	Pro					
			210						215						220					
ggg	gcc	aga	agt	cac	cgg	gga	gct	ctt	atg	gat	tcc	cag	caa	gca	tca	842				
Gly	Ala	Arg	Ser	His	Arg	Gly	Ala	Leu	Met	Asp	Ser	Gln	Gln	Ala	Ser					
			225						230						235					
gga	acc	att	gtg	caa	att	gtc	atc	aat	aac	aaa	cac	aag	cat	gga	caa	890				
Gly	Thr	Ile	Val	Gln	Ile	Val	Ile	Asn	Asn	Lys	His	Lys	His	Gly	Gln					
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gtg	tgt	gtt	tcc	aat	gga	aag	acc	tat	tct	cat	ggc	gag	tcc	tgg	cac	938				
Val	Cys	Val	Ser	Asn	Gly	Lys	Thr	Tyr	Ser	His	Gly	Glu	Ser	Trp	His					
			255						260						265					
cca	aac	ctc	cgg	gca	ttt	ggc	att	gtg	gag	tgt	gtg	cta	tgt	act	tgt	986				
Pro	Asn	Leu	Arg	Ala	Phe	Gly	Ile	Val	Glu	Cys	Val	Leu	Cys	Thr	Cys					
270				275						280						285				

al
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ccc tgc aag tat cct caa aaa ata gac gga aag tgc tgc aag gtg tgt 1082
 Pro Cys Lys Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys
 305 310 315

cca ggt aaa aaa gca aaa gaa gaa ctt cca ggc caa agc ttt gac aat 1130
 Pro Gly Lys Lys Ala Lys Glu Glu Leu Pro Gly Gln Ser Phe Asp Asn
 320 325 330

aaa ggc tac ttc tgc ggg gaa gaa acg atg cct gtg tat gag tct gta 1178
 Lys Gly Tyr Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu Ser Val
 335 340 345

ttc atg gag gat ggg gag aca acc aga aaa ata gca ctg gag act gag 1226
 Phe Met Glu Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu Thr Glu
 350 355 360 365

aga cca cct cag gta gag gtc cac gtt tgg act att cga aag ggc att 1274
 Arg Pro Pro Gln Val Glu Val His Val Trp Thr Ile Arg Lys Gly Ile
 370 375 380

ctc cag cac ttc cat att gag aag atc tcc aag agg atg ttt gag gag 1322
 Leu Gln His Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe Glu Glu
 385 390 395

ctt cct cac ttc aag ctg gtg acc aga aca acc ctg agc cag tgg aag 1370
 Leu Pro His Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln Trp Lys
 400 405 410

atc ttc acc gaa gga gaa gct cag atc agc cag atg tgt tca agt cgt 1418
 Ile Phe Thr Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser Ser Arg
 415 420 425

gta tgc aga aca gag ctt gaa gat tta gtc aag gtt ttg tac ctg gag 1466
 Val Cys Arg Thr Glu Leu Glu Asp Leu Val Lys Val Leu Tyr Leu Glu
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aga tct gaa aag ggc cac tgt taggcaagg 1496
 Arg Ser Glu Lys Gly His Cys
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Glu Gly Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr Tyr Cys Met
 20 25 30

Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His Pro Tyr Leu
35 40 45
Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn
50 55 60
Gly Asn Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His Cys Leu
65 70 75 80
Ser Pro Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro Glu Asp
85 90 95
Ser Leu Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr
100 105 110
Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu Gly Leu
115 120 125
Phe Gln Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu
130 135 140
Gly Asn Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala
145 150 155 160
Phe Pro Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg Gly Asp
165 170 175
Gly Glu Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg Gln Pro
180 185 190
Ala Asn Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr Asp Pro
195 200 205
Pro Pro Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg
210 215 220
Ser His Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly Thr Ile
225 230 235 240
Val Gln Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val Cys Val
245 250 255
Ser Asn Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro Asn Leu
260 265 270
Arg Ala Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr
275 280 285
Lys Gln Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys
290 295 300
Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro Gly Lys
305 310 315 320
Lys Ala Lys Glu Glu Leu Pro Gly Gln Ser Phe Asp Asn Lys Gly Tyr
325 330 335

a'
Cont.

Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu Ser Val Phe Met Glu
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 Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu Thr Glu Arg Pro Pro
 355 360 365
 Gln Val Glu Val His Val Trp Thr Ile Arg Lys Gly Ile Leu Gln His
 370 375 380
 Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe Glu Glu Leu Pro His
 385 390 395 400
 Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln Trp Lys Ile Phe Thr
 405 410 415
 Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser Ser Arg Val Cys Arg
 420 425 430
 Thr Glu Leu Glu Asp Leu Val Lys Val Leu Tyr Leu Glu Arg Ser Glu
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 Lys Gly His Cys
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 Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn
 35 40 45
 Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His Cys Leu Ser Pro
 50 55 60
 Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro Glu Asp Ser Leu
 65 70 75 80
 Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly
 85 90 95
 Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu Gly Leu Phe Gln
 100 105 110
 Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu Gly Asn
 115 120 125
 Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro

130	135	140
Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Gly Glu 145 150 155 160		
Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn 165 170 175		
Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr Asp Pro Pro Pro 180 185 190		
Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg Ser His 195 200 205		
Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln 210 215 220		
Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn 225 230 235 240		
Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala 245 250 255		
Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln 260 265 270		
Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro 275 280 285		
Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro Gly Lys Lys Ala 290 295 300		
Lys Glu Glu Leu Pro Gly Gln Ser Phe Asp Asn Lys Gly Tyr Phe Cys 305 310 315 320		
Gly Glu Glu Thr Met Pro Val Tyr Glu Ser Val Phe Met Glu Asp Gly 325 330 335		
Glu Thr Thr Arg Lys Ile Ala Leu Glu Thr Glu Arg Pro Pro Gln Val 340 345 350		
Glu Val His Val Trp Thr Ile Arg Lys Gly Ile Leu Gln His Phe His 355 360 365		
Ile Glu Lys Ile Ser Lys Arg Met Phe Glu Glu Leu Pro His Phe Lys 370 375 380		
Leu Val Thr Arg Thr Thr Leu Ser Gln Trp Lys Ile Phe Thr Glu Gly 385 390 395 400		
Glu Ala Gln Ile Ser Gln Met Cys Ser Ser Arg Val Cys Arg Thr Glu 405 410 415		
Leu Glu Asp Leu Val Lys Val Leu Tyr Leu Glu Arg Ser Glu Lys Gly 420 425 430		
His Cys		

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			20					25						30	
Val	Tyr	Cys	Val	Asn	Cys	Ile	Cys	Ser	Glu	Asn	Gly	Asn	Val	Leu	Cys
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Ser	Arg	Val	Arg	Cys	Pro	Asn	Val	His	Cys	Leu	Ser	Pro	Val	His	Ile
	50					55					60				
Pro	His	Leu	Cys	Cys	Pro	Arg	Cys	Pro	Glu	Asp	Ser	Leu	Pro	Pro	Val
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Asn	Asn	Lys	Val	Thr	Ser	Lys	Ser	Cys	Glu	Tyr	Asn	Gly	Thr	Thr	Tyr
				85					90					95	
Gln	His	Gly	Glu	Leu	Phe	Val	Ala	Glu	Gly	Leu	Phe	Gln	Asn	Arg	Gln
			100					105					110		
Pro	Asn	Gln	Cys	Thr	Gln	Cys	Ser	Cys	Ser	Glu	Gly	Asn	Val	Tyr	Cys
		115					120					125			
Gly	Leu	Lys	Thr	Cys	Pro	Lys	Leu	Thr	Cys	Ala	Phe	Pro	Val	Ser	Val
	130					135					140				
Pro	Asp	Ser	Cys	Cys	Arg	Val	Cys	Arg	Gly	Asp	Gly	Glu	Leu	Ser	Trp
145					150					155					160
Glu	His	Ser	Asp	Gly	Asp	Ile	Phe	Arg	Gln	Pro	Ala	Asn	Arg	Glu	Ala
				165					170					175	
Arg	His	Ser	Tyr	His	Arg	Ser	His	Tyr	Asp	Pro	Pro	Pro	Ser	Arg	Gln
			180					185					190		
Ala	Gly	Gly	Leu	Ser	Arg	Phe	Pro	Gly	Ala	Arg	Ser	His	Arg	Gly	Ala
		195					200					205			
Leu	Met	Asp	Ser	Gln	Gln	Ala	Ser	Gly	Thr	Ile	Val	Gln	Ile	Val	Ile
	210					215					220				
Asn	Asn	Lys	His	Lys	His	Gly	Gln	Val	Cys	Val	Ser	Asn	Gly	Lys	Thr
225					230					235					240
Tyr	Ser	His	Gly	Glu	Ser	Trp	His	Pro	Asn	Leu	Arg	Ala	Phe	Gly	Ile
				245					250					255	

al
cond

Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys
 260 265 270
 Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Ile
 275 280 285
 Asp Gly Lys Cys Cys Lys Val Cys Pro Gly Lys Lys Ala Lys Glu Glu
 290 295 300
 Leu Pro Gly Gln Ser Phe Asp Asn Lys Gly Tyr Phe Cys Gly Glu Glu
 305 310 315 320
 Thr Met Pro Val Tyr Glu Ser Val Phe Met Glu Asp Gly Glu Thr Thr
 325 330 335
 Arg Lys Ile Ala Leu Glu Thr Glu Arg Pro Pro Gln Val Glu Val His
 340 345 350
 Val Trp Thr Ile Arg Lys Gly Ile Leu Gln His Phe His Ile Glu Lys
 355 360 365
 Ile Ser Lys Arg Met Phe Glu Glu Leu Pro His Phe Lys Leu Val Thr
 370 375 380
 Arg Thr Thr Leu Ser Gln Trp Lys Ile Phe Thr Glu Gly Glu Ala Gln
 385 390 395 400
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 405 410 415
 Leu Val Lys Val Leu Tyr Leu Glu Arg Ser Glu Lys Gly His Cys
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 gaa gga ggc aaa aca gag caa gta aaa cat tca gag aca tat tgc atg 96

Glu	Gly	Gly	Lys	Thr	Glu	Gln	Val	Lys	His	Ser	Glu	Thr	Tyr	Cys	Met	
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ttt	caa	gac	aag	aag	tac	aga	gtg	ggt	gag	aga	tgg	cat	cct	tac	ctg	144
Phe	Gln	Asp	Lys	Lys	Tyr	Arg	Val	Gly	Glu	Arg	Trp	His	Pro	Tyr	Leu	
		35					40				45					
gaa	cct	tat	ggg	ttg	gtt	tac	tgc	gtg	aac	tgc	atc	tgc	tca	gag	aat	192
Glu	Pro	Tyr	Gly	Leu	Val	Tyr	Cys	Val	Asn	Cys	Ile	Cys	Ser	Glu	Asn	
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ggg	aat	gtg	ctt	tgc	agc	cga	gtc	aga	tgt	cca	aat	gtt	cat	tgc	ctt	240
Gly	Asn	Val	Leu	Cys	Ser	Arg	Val	Arg	Cys	Pro	Asn	Val	His	Cys	Leu	
65					70				75						80	
tct	cct	gtg	cat	att	cct	cat	ctg	tgc	tgc	cct	cgc	tgc	cca	gaa	gac	288
Ser	Pro	Val	His	Ile	Pro	His	Leu	Cys	Cys	Pro	Arg	Cys	Pro	Glu	Asp	
			85					90						95		
tcc	tta	ccc	cca	gtg	aac	aat	aag	gtg	acc	agc	aag	tct	tgc	gag	tac	336
Ser	Leu	Pro	Pro	Val	Asn	Asn	Lys	Val	Thr	Ser	Lys	Ser	Cys	Glu	Tyr	
			100					105					110			
aat	ggg	aca	act	tac	caa	cat	gga	gag	ctg	ttc	gta	gct	gaa	ggg	ctc	384
Asn	Gly	Thr	Thr	Tyr	Gln	His	Gly	Glu	Leu	Phe	Val	Ala	Glu	Gly	Leu	
		115					120					125				
ttt	cag	aat	cgg	caa	ccc	aat	caa	tgc	acc	cag	tgc	agc	tgt	tcg	gag	432
Phe	Gln	Asn	Arg	Gln	Pro	Asn	Gln	Cys	Thr	Gln	Cys	Ser	Cys	Ser	Glu	
	130					135					140					
gga	aac	gtg	tat	tgt	ggt	ctc	aag	act	tgc	ccc	aaa	tta	acc	tgt	gcc	480
Gly	Asn	Val	Tyr	Cys	Gly	Leu	Lys	Thr	Cys	Pro	Lys	Leu	Thr	Cys	Ala	
145					150				155						160	
ttc	cca	gtc	tct	gtt	cca	gat	tcc	tgc	tgc	cgg	gta	tgc	aga	gga	gat	528
Phe	Pro	Val	Ser	Val	Pro	Asp	Ser	Cys	Cys	Arg	Val	Cys	Arg	Gly	Asp	
			165					170						175		
gga	gaa	ctg	tca	tgg	gaa	cat	tct	gat	ggt	gat	atc	ttc	cgg	caa	cct	576
Gly	Glu	Leu	Ser	Trp	Glu	His	Ser	Asp	Gly	Asp	Ile	Phe	Arg	Gln	Pro	
			180					185					190			
gcc	aac	aga	gaa	gca	aga	cat	tct	tac	cac	cgc	tct	cac	tat	gat	cct	624
Ala	Asn	Arg	Glu	Ala	Arg	His	Ser	Tyr	His	Arg	Ser	His	Tyr	Asp	Pro	
		195					200					205				
cca	cca	agc	cga	cag	gct	gga	ggt	ctg	tcc	cgc	ttt	cct	ggg	gcc	aga	672
Pro	Pro	Ser	Arg	Gln	Ala	Gly	Gly	Leu	Ser	Arg	Phe	Pro	Gly	Ala	Arg	
	210					215					220					
agt	cac	cgg	gga	gct	ctt	atg	gat	tcc	cag	caa	gca	tca	gga	acc	att	720
Ser	His	Arg	Gly	Ala	Leu	Met	Asp	Ser	Gln	Gln	Ala	Ser	Gly	Thr	Ile	
225					230				235						240	
gtg	caa	att	gtc	atc	aat	aac	aaa	cac	aag	cat	gga	caa	gtg	tgt	gtt	768
Val	Gln	Ile	Val	Ile	Asn	Asn	Lys	His	Lys	His	Gly	Gln	Val	Cys	Val	

al
cont.

245										250					255					
tcc	aat	gga	aag	acc	tat	tct	cat	ggc	gag	tcc	tgg	cac	cca	aac	ctc	816				
Ser	Asn	Gly	Lys	Thr	Tyr	Ser	His	Gly	Glu	Ser	Trp	His	Pro	Asn	Leu					
260								265				270								
cgg	gca	ttt	ggc	att	gtg	gag	tgt	gtg	cta	tgt	act	tgt	aat	gtc	acc	864				
Arg	Ala	Phe	Gly	Ile	Val	Glu	Cys	Val	Leu	Cys	Thr	Cys	Asn	Val	Thr					
275								280				285								
aag	caa	gag	tgt	aag	aaa	atc	cac	tgc	ccc	aat	cga	tac	ccc	tgc	aag	912				
Lys	Gln	Glu	Cys	Lys	Lys	Ile	His	Cys	Pro	Asn	Arg	Tyr	Pro	Cys	Lys					
290								295				300								
tat	cct	caa	aaa	ata	gac	gga	aag	tgc	tgc	aag	gtg	tgt	cca	gaa	gaa	960				
Tyr	Pro	Gln	Lys	Ile	Asp	Gly	Lys	Cys	Cys	Lys	Val	Cys	Pro	Glu	Glu					
305				310				315				320								
ctt	cca	ggc	caa	agc	ttt	gac	aat	aaa	ggc	tac	ttc	tgc	ggg	gaa	gaa	1008				
Leu	Pro	Gly	Gln	Ser	Phe	Asp	Asn	Lys	Gly	Tyr	Phe	Cys	Gly	Glu	Glu					
				325								335								
acg	atg	cct	gtg	tat	gag	tct	gta	ttc	atg	gag	gat	ggg	gag	aca	acc	1056				
Thr	Met	Pro	Val	Tyr	Glu	Ser	Val	Phe	Met	Glu	Asp	Gly	Glu	Thr	Thr					
340								345				350								
aga	aaa	ata	gca	ctg	gag	act	gag	aga	cca	cct	cag	gta	gag	gtc	cac	1104				
Arg	Lys	Ile	Ala	Leu	Glu	Thr	Glu	Arg	Pro	Pro	Gln	Val	Glu	Val	His					
355								360				365								
gtt	tgg	act	att	cga	aag	ggc	att	ctc	cag	cac	ttc	cat	att	gag	aag	1152				
Val	Trp	Thr	Ile	Arg	Lys	Gly	Ile	Leu	Gln	His	Phe	His	Ile	Glu	Lys					
370								375				380								
atc	tcc	aag	agg	atg	ttt	gag	gag	ctt	cct	cac	ttc	aag	ctg	gtg	acc	1200				
Ile	Ser	Lys	Arg	Met	Phe	Glu	Glu	Leu	Pro	His	Phe	Lys	Leu	Val	Thr					
385				390				395				400								
aga	aca	acc	ctg	agc	cag	tgg	aag	atc	ttc	acc	gaa	gga	gaa	gct	cag	1248				
Arg	Thr	Thr	Leu	Ser	Gln	Trp	Lys	Ile	Phe	Thr	Glu	Gly	Glu	Ala	Gln					
				405				410				415								
atc	agc	cag	atg	tgt	tca	agt	cgt	gta	tgc	aga	aca	gag	ctt	gaa	gat	1296				
Ile	Ser	Gln	Met	Cys	Ser	Ser	Arg	Val	Cys	Arg	Thr	Glu	Leu	Glu	Asp					
420								425				430								
tta	gtc	aag	gtt	ttg	tac	ctg	gag	aga	tct	gaa	aag	ggc	cac	tgt		1341				
Leu	Val	Lys	Val	Leu	Tyr	Leu	Glu	Arg	Ser	Glu	Lys	Gly	His	Cys						
435								440				445								

<210> 12
 <211> 447
 <212> PRT
 <213> Homo sapiens

<400> 12

Met Gly Gly Met Lys Tyr Ile Phe Ser Leu Leu Phe Phe Leu Leu Leu
 1 5 10 15
 Glu Gly Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr Tyr Cys Met
 20 25 30
 Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His Pro Tyr Leu
 35 40 45
 Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn
 50 55 60
 Gly Asn Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His Cys Leu
 65 70 75 80
 Ser Pro Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro Glu Asp
 85 90 95
 Ser Leu Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr
 100 105 110
 Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu Gly Leu
 115 120 125
 Phe Gln Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu
 130 135 140
 Gly Asn Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala
 145 150 155 160
 Phe Pro Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg Gly Asp
 165 170 175
 Gly Glu Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg Gln Pro
 180 185 190
 Ala Asn Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr Asp Pro
 195 200 205
 Pro Pro Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg
 210 215 220
 Ser His Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly Thr Ile
 225 230 235 240
 Val Gln Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val Cys Val
 245 250 255
 Ser Asn Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro Asn Leu
 260 265 270
 Arg Ala Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr
 275 280 285
 Lys Gln Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys
 290 295 300

Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro Glu Glu
305 310 315 320

Leu Pro Gly Gln Ser Phe Asp Asn Lys Gly Tyr Phe Cys Gly Glu Glu
325 330 335

Thr Met Pro Val Tyr Glu Ser Val Phe Met Glu Asp Gly Glu Thr Thr
340 345 350

Arg Lys Ile Ala Leu Glu Thr Glu Arg Pro Pro Gln Val Glu Val His
355 360 365

Val Trp Thr Ile Arg Lys Gly Ile Leu Gln His Phe His Ile Glu Lys
370 375 380

Ile Ser Lys Arg Met Phe Glu Glu Leu Pro His Phe Lys Leu Val Thr
385 390 395 400

Arg Thr Thr Leu Ser Gln Trp Lys Ile Phe Thr Glu Gly Glu Ala Gln
405 410 415

Ile Ser Gln Met Cys Ser Ser Arg Val Cys Arg Thr Glu Leu Glu Asp
420 425 430

Leu Val Lys Val Leu Tyr Leu Glu Arg Ser Glu Lys Gly His Cys
435 440 445

<210> 13

<211> 429

<212> PRT

<213> Homo sapiens

<400> 13

Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr Tyr Cys Met Phe Gln
1 5 10 15

Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His Pro Tyr Leu Glu Pro
20 25 30

Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn
35 40 45

Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His Cys Leu Ser Pro
50 55 60

Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro Glu Asp Ser Leu
65 70 75 80

Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly
85 90 95

Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu Gly Leu Phe Gln
100 105 110

Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu Gly Asn
115 120 125

Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro
 130 135 140
 Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Gly Glu
 145 150 155 160
 Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn
 165 170 175
 Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr Asp Pro Pro Pro
 180 185 190
 Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg Ser His
 195 200 205
 Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln
 210 215 220
 Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn
 225 230 235 240
 Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala
 245 250 255
 Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln
 260 265 270
 Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro
 275 280 285
 Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro Glu Glu Leu Pro
 290 295 300
 Gly Gln Ser Phe Asp Asn Lys Gly Tyr Phe Cys Gly Glu Glu Thr Met
 305 310 315 320
 Pro Val Tyr Glu Ser Val Phe Met Glu Asp Gly Glu Thr Thr Arg Lys
 325 330 335
 Ile Ala Leu Glu Thr Glu Arg Pro Pro Gln Val Glu Val His Val Trp
 340 345 350
 Thr Ile Arg Lys Gly Ile Leu Gln His Phe His Ile Glu Lys Ile Ser
 355 360 365
 Lys Arg Met Phe Glu Glu Leu Pro His Phe Lys Leu Val Thr Arg Thr
 370 375 380
 Thr Leu Ser Gln Trp Lys Ile Phe Thr Glu Gly Glu Ala Gln Ile Ser
 385 390 395 400
 Gln Met Cys Ser Ser Arg Val Cys Arg Thr Glu Leu Glu Asp Leu Val
 405 410 415
 Lys Val Leu Tyr Leu Glu Arg Ser Glu Lys Gly His Cys
 420 425

<210> 14
 <211> 426
 <212> PRT
 <213> Homo sapiens

<400> 14

Glu	Gln	Val	Lys	His	Ser	Glu	Thr	Tyr	Cys	Met	Phe	Gln	Asp	Lys	Lys
1				5					10					15	
Tyr	Arg	Val	Gly	Glu	Arg	Trp	His	Pro	Tyr	Leu	Glu	Pro	Tyr	Gly	Leu
			20					25					30		
Val	Tyr	Cys	Val	Asn	Cys	Ile	Cys	Ser	Glu	Asn	Gly	Asn	Val	Leu	Cys
		35					40					45			
Ser	Arg	Val	Arg	Cys	Pro	Asn	Val	His	Cys	Leu	Ser	Pro	Val	His	Ile
	50					55					60				
Pro	His	Leu	Cys	Cys	Pro	Arg	Cys	Pro	Glu	Asp	Ser	Leu	Pro	Pro	Val
65					70					75					80
Asn	Asn	Lys	Val	Thr	Ser	Lys	Ser	Cys	Glu	Tyr	Asn	Gly	Thr	Thr	Tyr
				85					90					95	
Gln	His	Gly	Glu	Leu	Phe	Val	Ala	Glu	Gly	Leu	Phe	Gln	Asn	Arg	Gln
			100					105					110		
Pro	Asn	Gln	Cys	Thr	Gln	Cys	Ser	Cys	Ser	Glu	Gly	Asn	Val	Tyr	Cys
		115					120					125			
Gly	Leu	Lys	Thr	Cys	Pro	Lys	Leu	Thr	Cys	Ala	Phe	Pro	Val	Ser	Val
	130					135					140				
Pro	Asp	Ser	Cys	Cys	Arg	Val	Cys	Arg	Gly	Asp	Gly	Glu	Leu	Ser	Trp
145					150					155					160
Glu	His	Ser	Asp	Gly	Asp	Ile	Phe	Arg	Gln	Pro	Ala	Asn	Arg	Glu	Ala
				165					170					175	
Arg	His	Ser	Tyr	His	Arg	Ser	His	Tyr	Asp	Pro	Pro	Pro	Ser	Arg	Gln
			180					185					190		
Ala	Gly	Gly	Leu	Ser	Arg	Phe	Pro	Gly	Ala	Arg	Ser	His	Arg	Gly	Ala
		195					200					205			
Leu	Met	Asp	Ser	Gln	Gln	Ala	Ser	Gly	Thr	Ile	Val	Gln	Ile	Val	Ile
	210					215					220				
Asn	Asn	Lys	His	Lys	His	Gly	Gln	Val	Cys	Val	Ser	Asn	Gly	Lys	Thr
225					230					235					240
Tyr	Ser	His	Gly	Glu	Ser	Trp	His	Pro	Asn	Leu	Arg	Ala	Phe	Gly	Ile
			245						250					255	
Val	Glu	Cys	Val	Leu	Cys	Thr	Cys	Asn	Val	Thr	Lys	Gln	Glu	Cys	Lys

a' cont.

260										265					270				
Lys	Ile	His	Cys	Pro	Asn	Arg	Tyr	Pro	Cys	Lys	Tyr	Pro	Gln	Lys	Ile				
275										280					285				
Asp	Gly	Lys	Cys	Cys	Lys	Val	Cys	Pro	Glu	Glu	Leu	Pro	Gly	Gln	Ser				
290										295					300				
Phe	Asp	Asn	Lys	Gly	Tyr	Phe	Cys	Gly	Glu	Glu	Thr	Met	Pro	Val	Tyr				
305										310					315				
Glu	Ser	Val	Phe	Met	Glu	Asp	Gly	Glu	Thr	Thr	Arg	Lys	Ile	Ala	Leu				
325										330					335				
Glu	Thr	Glu	Arg	Pro	Pro	Gln	Val	Glu	Val	His	Val	Trp	Thr	Ile	Arg				
340										345					350				
Lys	Gly	Ile	Leu	Gln	His	Phe	His	Ile	Glu	Lys	Ile	Ser	Lys	Arg	Met				
355										360					365				
Phe	Glu	Glu	Leu	Pro	His	Phe	Lys	Leu	Val	Thr	Arg	Thr	Thr	Leu	Ser				
370										375					380				
Gln	Trp	Lys	Ile	Phe	Thr	Glu	Gly	Glu	Ala	Gln	Ile	Ser	Gln	Met	Cys				
385										390					395				
Ser	Ser	Arg	Val	Cys	Arg	Thr	Glu	Leu	Glu	Asp	Leu	Val	Lys	Val	Leu				
405										410					415				
Tyr	Leu	Glu	Arg	Ser	Glu	Lys	Gly	His	Cys										
420										425									

<210> 15
 <211> 948
 <212> PRT
 <213> Mus musculus

a' Cont

<400> 15															
Met	Pro	Ser	Leu	Pro	Ala	Pro	Pro	Ala	Pro	Arg	Leu	Leu	Leu	Gly	Leu
1				5					10					15	
Leu	Leu	Leu	Gly	Ser	Arg	Pro	Ala	Ser	Gly	Thr	Gly	Pro	Glu	Pro	Pro
			20					25					30		
Ala	Leu	Pro	Ile	Arg	Ser	Glu	Lys	Glu	Pro	Leu	Pro	Val	Arg	Gly	Ala
		35					40					45			
Ala	Gly	Cys	Ser	Phe	Gly	Gly	Lys	Val	Tyr	Ala	Leu	Asp	Glu	Thr	Trp
	50					55					60				
His	Pro	Asp	Leu	Gly	Glu	Pro	Phe	Gly	Val	Met	Arg	Cys	Val	Leu	Cys
65					70					75					80
Ala	Cys	Glu	Ala	Pro	Gln	Trp	Ala	Arg	Arg	Gly	Arg	Gly	Pro	Gly	Arg
				85					90					95	

Val	Ser	Cys	Lys	Asn	Ile	Lys	Pro	Gln	Cys	Pro	Thr	Leu	Ala	Cys	Arg		
			100					105						110			
Gln	Pro	Arg	Gln	Leu	Pro	Gly	His	Cys	Cys	Gln	Thr	Cys	Pro	Gln	Glu		
		115					120					125					
Arg	Ser	Asn	Leu	Asp	Pro	Gln	Pro	Ala	Gly	Leu	Val	Phe	Glu	Tyr	Pro		
	130					135					140						
Arg	Asp	Pro	Glu	His	Arg	Ser	Tyr	Ser	Asp	Arg	Gly	Glu	Pro	Gly	Val		
145					150				155						160		
Gly	Glu	Arg	Thr	Arg	Ala	Asp	Gly	His	Thr	Asp	Phe	Val	Ala	Leu	Leu		
				165					170					175			
Thr	Gly	Pro	Arg	Ser	Gln	Ala	Val	Ala	Arg	Ala	Arg	Val	Ser	Leu	Leu		
			180					185					190				
Arg	Ser	Ser	Leu	Arg	Phe	Ser	Val	Ser	Tyr	Gln	Arg	Leu	Asp	Arg	Pro		
		195					200					205					
Ser	Arg	Val	Arg	Phe	Thr	Asp	Pro	Thr	Gly	Asn	Ile	Leu	Phe	Glu	His		
	210					215					220						
Pro	Ala	Thr	Pro	Thr	Gln	Asp	Gly	Leu	Val	Cys	Gly	Val	Trp	Arg	Ala		
225					230					235					240		
Val	Pro	Arg	Leu	Ser	Val	Arg	Leu	Leu	Arg	Ala	Glu	Gln	Leu	Arg	Val		
				245					250					255			
Ala	Leu	Val	Thr	Ser	Thr	His	Pro	Ser	Gly	Glu	Val	Trp	Gly	Pro	Leu		
			260					265					270				
Ile	Trp	Gln	Gly	Ala	Leu	Ala	Ala	Glu	Thr	Phe	Ser	Ala	Ile	Leu	Thr		
		275					280					285					
Leu	Glu	Asp	Pro	Leu	Gln	Arg	Gly	Val	Gly	Gly	Ile	Ala	Leu	Leu	Thr		
	290					295					300						
Leu	Ser	Asp	Thr	Glu	Asp	Ser	Leu	His	Phe	Leu	Leu	Leu	Phe	Arg	Gly		
305					310				315						320		
Leu	Leu	Gly	Gly	Leu	Ala	Gln	Ala	Pro	Leu	Lys	Leu	Gln	Ile	Leu	His		
				325				330						335			
Gln	Gly	Gln	Leu	Leu	Arg	Glu	Leu	Gln	Ala	Asn	Thr	Ser	Ala	Gln	Glu		
			340					345					350				
Pro	Gly	Phe	Ala	Glu	Val	Leu	Pro	Ser	Leu	Thr	Asp	Gln	Glu	Met	Asp		
		355					360					365					
Trp	Leu	Glu	Leu	Gly	Glu	Leu	Gln	Met	Val	Leu	Glu	Lys	Ala	Gly	Gly		
	370					375					380						
Pro	Glu	Leu	Arg	Ile	Ser	Gly	Tyr	Ile	Thr	Thr	Arg	Gln	Ser	Cys	Asp		
385					390					395					400		

a' Cont

Val Leu Gln Ser Val Leu Cys Gly Ala Asp Ala Leu Ile Pro Val Gln
 405 410 415
 Thr Gly Ala Ala Gly Ser Ala Ser Phe Ile Leu Leu Gly Asn Gly Ser
 420 425 430
 Leu Ile Tyr Gln Val Gln Val Val Gly Thr Gly Ser Glu Val Val Ala
 435 440 445
 Met Thr Leu Glu Thr Lys Pro Gln Arg Lys Asn Gln Arg Thr Val Leu
 450 455 460
 Cys His Met Ala Gly Leu Gln Pro Gly Gly His Met Ala Val Gly Met
 465 470 475 480
 Cys Ser Gly Leu Gly Ala Arg Gly Ala His Met Leu Leu Gln Asn Glu
 485 490 495
 Leu Phe Leu Asn Val Gly Thr Lys Asp Phe Pro Asp Gly Glu Leu Arg
 500 505 510
 Gly His Val Thr Ala Leu Cys Tyr Ser Gly His Ser Ala Arg Tyr Asp
 515 520 525
 Arg Leu Pro Val Pro Leu Ala Gly Ala Leu Val Leu Pro Pro Val Arg
 530 535 540
 Ser Gln Ala Ala Gly His Ala Trp Leu Ser Leu Asp Thr His Cys His
 545 550 555 560
 Leu His Tyr Glu Val Leu Leu Ala Gly Leu Gly Gly Ser Glu Gln Gly
 565 570 575
 Thr Val Thr Ala His Leu Leu Gly Pro Pro Gly Met Pro Gly Pro Gln
 580 585 590
 Arg Leu Leu Lys Gly Phe Tyr Gly Ser Glu Ala Gln Gly Val Val Lys
 595 600 605
 Asp Leu Glu Pro Val Leu Leu Arg His Leu Ala Gln Gly Thr Ala Ser
 610 615 620
 Leu Leu Ile Thr Thr Lys Ser Ser Pro Arg Gly Glu Leu Arg Gly Gln
 625 630 635 640
 Val His Ile Ala Ser Gln Cys Glu Ala Gly Gly Leu Arg Leu Ala Ser
 645 650 655
 Glu Gly Val Gln Met Pro Leu Ala Pro Asn Gly Glu Ala Ala Thr Ser
 660 665 670
 Pro Met Leu Pro Ala Gly Pro Gly Pro Glu Ala Pro Val Pro Ala Lys
 675 680 685
 His Gly Ser Pro Gly Arg Pro Arg Asp Pro Asn Thr Cys Phe Phe Glu
 690 695 700

a'
 cont.

Gly Gln Gln Arg Pro His Gly Ala Arg Trp Ala Pro Asn Tyr Asp Pro
705 710 715 720

Leu Cys Ser Leu Cys Ile Cys Gln Arg Arg Thr Val Ile Cys Asp Pro
725 730 735

Val Val Cys Pro Pro Pro Ser Cys Pro His Pro Val Gln Ala Leu Asp
740 745 750

Gln Cys Cys Pro Val Cys Pro Glu Lys Gln Arg Ser Arg Asp Leu Pro
755 760 765

Ser Leu Pro Asn Leu Glu Pro Gly Glu Gly Cys Tyr Phe Asp Gly Asp
770 775 780

Arg Ser Trp Arg Ala Ala Gly Thr Arg Trp His Pro Val Val Pro Pro
785 790 795 800

Phe Gly Leu Ile Lys Cys Ala Val Cys Thr Cys Lys Gly Ala Thr Gly
805 810 815

Glu Val His Cys Glu Lys Val Gln Cys Pro Arg Leu Ala Cys Ala Gln
820 825 830

Pro Val Arg Ala Asn Pro Thr Asp Cys Cys Lys Gln Cys Pro Val Gly
835 840 845

Ser Gly Thr Asn Ala Lys Leu Gly Asp Pro Met Gln Ala Asp Gly Pro
850 855 860

Arg Gly Cys Arg Phe Ala Gly Gln Trp Phe Pro Glu Asn Gln Ser Trp
865 870 875 880

His Pro Ser Val Pro Pro Phe Gly Glu Met Ser Cys Ile Thr Cys Arg
885 890 895

Cys Gly Ala Gly Val Pro His Cys Glu Arg Asp Asp Cys Ser Pro Pro
900 905 910

Leu Ser Cys Gly Ser Gly Lys Glu Ser Arg Cys Cys Ser His Cys Thr
915 920 925

Ala Gln Arg Ser Ser Glu Thr Arg Thr Leu Pro Glu Leu Glu Lys Glu
930 935 940

Ala Glu His Ser
945

<210> 16

<211> 176

<212> PRT

<213> Rattus norvegicus

<400> 16

Gly Gly Leu Arg Leu Ala Ser Glu Gly Val Arg Met Ser Leu Ala Pro
1 5 10 15

Asn Gly Glu Ala Ala Thr Ser Pro Met Leu Pro Ala Gly Pro Gly Pro
 20 25 30
 Glu Ala Pro Val Pro Ala Lys His Gly Ser Ser Gly Arg Pro Arg Asp
 35 40 45
 Pro Asn Thr Cys Phe Phe Glu Gly Gln Gln Arg Pro His Gly Ala Arg
 50 55 60
 Trp Ala Pro Asn Tyr Asp Pro Leu Cys Ser Leu Cys Thr Cys Gln Arg
 65 70 75 80
 Arg Thr Val Ile Cys Asp Pro Val Val Cys Pro Pro Pro Arg Cys Ser
 85 90 95
 Gln Pro Val Gln Ala Leu Asp Gln Trp Cys Pro Val Cys Ser Glu Lys
 100 105 110
 Gln Arg Ser Arg Asp Leu Ser Ser Leu Pro Asn Leu Glu Pro Gly Glu
 115 120 125
 Gly Cys Tyr Phe Asp Gly Asp Arg Ser Trp Arg Ala Ala Gly Thr Arg
 130 135 140
 Trp His Pro Val Val Pro Pro Phe Gly Leu Ile Lys Cys Gly Val Cys
 145 150 155 160
 Thr Cys Lys Gly Val Asn Gly Glu Val His Ser Glu Lys Val Gln Cys
 165 170 175

<210> 17
 <211> 801
 <212> PRT
 <213> Homo sapiens

<400> 17
 Gln Val Ala Ala Gly His Cys Cys Gln Thr Cys Pro Gln Glu Arg Ser
 1 5 10 15
 Ser Ser Glu Arg Gln Pro Ser Gly Leu Ser Phe Glu Tyr Pro Arg Asp
 20 25 30
 Pro Glu His Arg Ser Tyr Ser Asp Arg Gly Glu Pro Gly Ala Glu Glu
 35 40 45
 Arg Ala Arg Gly Asp Gly His Thr Asp Phe Val Ala Leu Leu Thr Gly
 50 55 60
 Pro Arg Ser Gln Ala Val Ala Arg Ala Arg Ala Ser Leu Leu Arg Ser
 65 70 75 80
 Ser Leu Arg Phe Ser Ile Ser Tyr Arg Arg Leu Asp Arg Pro Thr Arg
 85 90 95
 Ile Arg Phe Ser Asp Pro Asn Gly Ser Val Leu Phe Glu His Pro Ala

100					105					110						
Ala	Pro	Thr	Gln	Asp	Gly	Leu	Val	Cys	Gly	Val	Trp	Arg	Ala	Val	Pro	
115					120					125						
Arg	Leu	Ser	Leu	Arg	Leu	Leu	Arg	Ala	Glu	Gln	Leu	His	Val	Ala	Leu	
130					135					140						
Val	Thr	Leu	Thr	His	Pro	Ser	Gly	Glu	Val	Trp	Gly	Pro	Leu	Ile	Arg	
145					150					155					160	
His	Arg	Ala	Leu	Ala	Ala	Glu	Thr	Phe	Ser	Ala	Ile	Leu	Thr	Leu	Glu	
165					170					175						
Gly	Pro	Pro	Gln	Gln	Gly	Val	Gly	Gly	Ile	Thr	Leu	Leu	Thr	Leu	Ser	
180					185					190						
Asp	Thr	Glu	Asp	Ser	Leu	His	Phe	Leu	Leu	Leu	Phe	Arg	Gly	Leu	Leu	
195					200					205						
Glu	Pro	Arg	Ser	Gly	Gly	Leu	Thr	Gln	Val	Pro	Leu	Arg	Leu	Gln	Ile	
210					215					220						
Leu	His	Gln	Gly	Gln	Leu	Leu	Arg	Glu	Leu	Gln	Ala	Asn	Val	Ser	Ala	
225					230					235					240	
Gln	Glu	Pro	Gly	Phe	Ala	Glu	Val	Leu	Pro	Asn	Leu	Thr	Val	Gln	Glu	
245					250					255						
Met	Asp	Trp	Leu	Val	Leu	Gly	Glu	Leu	Gln	Met	Ala	Leu	Glu	Trp	Ala	
260					265					270						
Gly	Arg	Pro	Gly	Leu	Arg	Ile	Ser	Gly	His	Ile	Ala	Ala	Arg	Lys	Ser	
275					280					285						
Cys	Asp	Val	Leu	Gln	Ser	Val	Leu	Cys	Gly	Ala	Asp	Ala	Leu	Ile	Pro	
290					295					300						
Val	Gln	Thr	Gly	Ala	Ala	Gly	Ser	Ala	Ser	Leu	Thr	Leu	Leu	Gly	Asn	
305					310					315					320	
Gly	Ser	Leu	Ile	Tyr	Gln	Ala	Val	Gly	Ile	Cys	Pro	Gly	Leu	Gly	Ala	
325					330					335						
Arg	Gly	Ala	His	Met	Leu	Leu	Gln	Asn	Glu	Leu	Phe	Leu	Asn	Val	Gly	
340					345					350						
Thr	Lys	Asp	Phe	Pro	Asp	Gly	Glu	Leu	Arg	Gly	His	Val	Ala	Ala	Leu	
355					360					365						
Pro	Tyr	Cys	Gly	His	Ser	Ala	Arg	His	Asp	Thr	Leu	Pro	Val	Pro	Leu	
370					375					380						
Ala	Gly	Ala	Leu	Val	Leu	Pro	Pro	Val	Lys	Ser	Gln	Ala	Ala	Gly	His	
385					390					395					400	
Ala	Trp	Leu	Ser	Leu	Asp	Thr	His	Cys	His	Leu	His	Tyr	Glu	Val	Leu	

al
cont

405										410					415				
Leu	Ala	Gly	Leu	Gly	Gly	Ser	Glu	Gln	Gly	Thr	Val	Thr	Ala	His	Leu				
			420					425					430						
Leu	Gly	Pro	Pro	Gly	Thr	Pro	Gly	Pro	Arg	Arg	Leu	Leu	Lys	Gly	Phe				
		435					440					445							
Tyr	Gly	Ser	Glu	Ala	Gln	Gly	Val	Val	Lys	Asp	Leu	Glu	Pro	Glu	Leu				
	450					455					460								
Leu	Arg	His	Leu	Ala	Lys	Gly	Met	Ala	Ser	Leu	Leu	Ile	Thr	Thr	Lys				
465					470					475					480				
Gly	Ser	Pro	Arg	Gly	Glu	Leu	Arg	Gly	Gln	Val	His	Ile	Ala	Asn	Gln				
				485					490					495					
Cys	Glu	Val	Gly	Gly	Leu	Arg	Leu	Glu	Ala	Ala	Gly	Ala	Glu	Gly	Val				
			500					505					510						
Arg	Ala	Leu	Gly	Ala	Pro	Asp	Pro	Ala	Ser	Ala	Ala	Pro	Pro	Val	Val				
		515					520					525							
Pro	Gly	Leu	Pro	Ala	Leu	Ala	Pro	Ala	Lys	Pro	Gly	Gly	Pro	Gly	Arg				
	530					535					540								
Pro	Arg	Asp	Pro	Asn	Thr	Cys	Phe	Phe	Glu	Gly	Gln	Gln	Arg	Pro	His				
545					550					555					560				
Gly	Ala	Arg	Trp	Ala	Pro	Asn	Tyr	Asp	Pro	Leu	Cys	Ser	Leu	Cys	Thr				
				565					570					575					
Cys	Gln	Arg	Arg	Thr	Val	Ile	Cys	Asp	Pro	Val	Val	Cys	Pro	Pro	Pro				
			580					585					590						
Ser	Cys	Pro	His	Pro	Val	Gln	Ala	Pro	Asp	Gln	Cys	Cys	Pro	Val	Cys				
		595					600					605							
Pro	Glu	Lys	Gln	Asp	Val	Arg	Asp	Leu	Pro	Gly	Leu	Pro	Arg	Ser	Arg				
	610					615					620								
Asp	Pro	Gly	Glu	Gly	Cys	Tyr	Phe	Asp	Gly	Asp	Arg	Ser	Trp	Arg	Ala				
625					630					635					640				
Ala	Gly	Thr	Arg	Trp	His	Pro	Val	Val	Pro	Pro	Phe	Gly	Leu	Ile	Lys				
				645					650					655					
Cys	Ala	Val	Cys	Thr	Cys	Lys	Gly	Gly	Thr	Gly	Glu	Val	His	Cys	Glu				
		660						665					670						
Lys	Val	Gln	Cys	Pro	Arg	Leu	Ala	Cys	Ala	Gln	Pro	Val	Arg	Val	Asn				
		675					680						685						
Pro	Thr	Asp	Cys	Cys	Lys	Gln	Cys	Pro	Val	Gly	Ser	Gly	Ala	His	Pro				
	690						695					700							
Gln	Leu	Gly	Asp	Pro	Met	Gln	Ala	Asp	Gly	Pro	Arg	Gly	Cys	Arg	Phe				

Q1
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<210> 21
<211> 20
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2125-06

<400> 21
gagatgagga atatgcacgg 20

<210> 22
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2127-58

<400> 22
gacatctgac tcggctgc 18

<210> 23
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2212-48

<400> 23
tcacgcagta aaccaac 17

a!
Cont
<210> 24
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2235-53

<400> 24
cggaattcgc caccatggga ggcataaat acatcttt 38

<210> 25
<211> 33
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
2235-54

<400> 25

cgcggatcca cagtggccct tttcagatct etc

33

<210> 26

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 26

ttaccaccag tgaacaataa gg

22

<210> 27

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 27

cttgagacca cagtatacat tc

22

<210> 28

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 28

agtgcccgagc tttagtccac

20

<210> 29

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 29

gttctgtttt gcttccttct ag

22

<210> 30

<211> 44
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
2149-76

<400> 30
gctagcggcc gcgccaccat ggatggcatg aaatacatca ttcc

44

<210> 31
<211> 33
<212> DNA
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<220>

<223> Description of Artificial Sequence: PCR primer
2149-77

<400> 31
ggtaccggat ccaccaaagg cagggcctcc agc

33

<210> 32
<211> 39
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
2170-06

<400> 32
gctagcggcc gcgccaccat gccgagcctc ccggccccg

39

<210> 33
<211> 36
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
2170-07

<400> 33
ggatccgtcg acggagtgtc ccgcttcttt ctccag

36

<210> 34
<211> 345
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Murine
CHL-FLAG

<220>

<221> SIGNAL

<222> (1)..(22)

<220>

<221> SITE

<222> (334)..(345)

<223> FLAG domain

<400> 34

Met Asp Gly Met Lys Tyr Ile Ile Ser Leu Phe Phe Ile Phe Val Phe
1 5 10 15
Leu Glu Gly Ser Lys Thr Glu Gln Val Lys His Ser Asp Thr Tyr Cys
20 25 30
Val Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Lys Trp His Pro Tyr
35 40 45
Leu Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser Glu
50 55 60
Asn Gly Asn Val Leu Cys Ser Arg Val Arg Cys Pro Ser Leu His Cys
65 70 75 80
Leu Ser Pro Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro Asp
85 90 95
Ser Leu Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr
100 105 110
Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Ile Ala Glu Gly Leu
115 120 125
Phe Gln Asn Arg Gln Pro Asn Gln Cys Ser Gln Cys Ser Cys Ser Glu
130 135 140
Gly Asn Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala
145 150 155 160
Phe Pro Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg Gly Asp
165 170 175
Ala Glu Leu Ser Trp Glu His Ala Asp Gly Asp Ile Phe Arg Gln Pro
180 185 190
Ala Asn Arg Glu Ala Arg His Ser Tyr Leu Arg Ser Pro Tyr Asp Pro
195 200 205
Pro Pro Asn Arg Gln Ala Gly Gly Leu Pro Arg Phe Pro Gly Ser Arg
210 215 220
Ser His Arg Gly Ala Val Ile Asp Ser Gln Gln Ala Ser Gly Thr Ile
225 230 235 240

Val Gln Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val Cys Val
245 250 255

Ser Asn Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro Asn Leu
260 265 270

Arg Ala Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn Val Thr
275 280 285

Lys Gln Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro Cys Lys
290 295 300

Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro Gly Lys
305 310 315 320

Lys Ala Lys Gly Ala Leu Ala Gly Gly Pro Ala Phe Gly Gly Ser Gly
325 330 335

Thr Asp Tyr Lys Asp Asp Asp Asp Lys
340 345

<210> 35
<211> 323
<212> PRT
<213> Artificial Sequence

<220>
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CHL-FLAG

<220>
<221> SITE
<222> (312)..(323)
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<400> 35
Glu Gln Val Lys His Ser Asp Thr Tyr Cys Val Phe Gln Asp Lys Lys
1 5 10 15

Tyr Arg Val Gly Glu Lys Trp His Pro Tyr Leu Glu Pro Tyr Gly Leu
20 25 30

Val Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn Val Leu Cys
35 40 45

Ser Arg Val Arg Cys Pro Ser Leu His Cys Leu Ser Pro Val His Ile
50 55 60

Pro His Leu Cys Cys Pro Arg Cys Pro Asp Ser Leu Pro Pro Val Asn
65 70 75 80

Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly Thr Thr Tyr Gln
85 90 95

His Gly Glu Leu Phe Ile Ala Glu Gly Leu Phe Gln Asn Arg Gln Pro

100 105 110
 Asn Gln Cys Ser Gln Cys Ser Cys Ser Glu Gly Asn Val Tyr Cys Gly
 115 120 125
 Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro Val Ser Val Pro
 130 135 140
 Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Ala Glu Leu Ser Trp Glu
 145 150 155 160
 His Ala Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn Arg Glu Ala Arg
 165 170 175
 His Ser Tyr Leu Arg Ser Pro Tyr Asp Pro Pro Pro Asn Arg Gln Ala
 180 185 190
 Gly Gly Leu Pro Arg Phe Pro Gly Ser Arg Ser His Arg Gly Ala Val
 195 200 205
 Ile Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln Ile Val Ile Asn
 210 215 220
 Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn Gly Lys Thr Tyr
 225 230 235 240
 Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala Phe Gly Ile Val
 245 250 255
 Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys Lys
 260 265 270
 Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Ile Asp
 275 280 285
 Gly Lys Cys Cys Lys Val Cys Pro Gly Lys Lys Ala Lys Gly Ala Leu
 290 295 300
 Ala Gly Gly Pro Ala Phe Gly Gly Ser Gly Thr Asp Tyr Lys Asp Asp
 305 310 315 320
 Asp Asp Lys

<210> 36
 <211> 962
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Murine
 CHD-FLAG

<220>
 <221> SIGNAL
 <222> (1) .. (26)